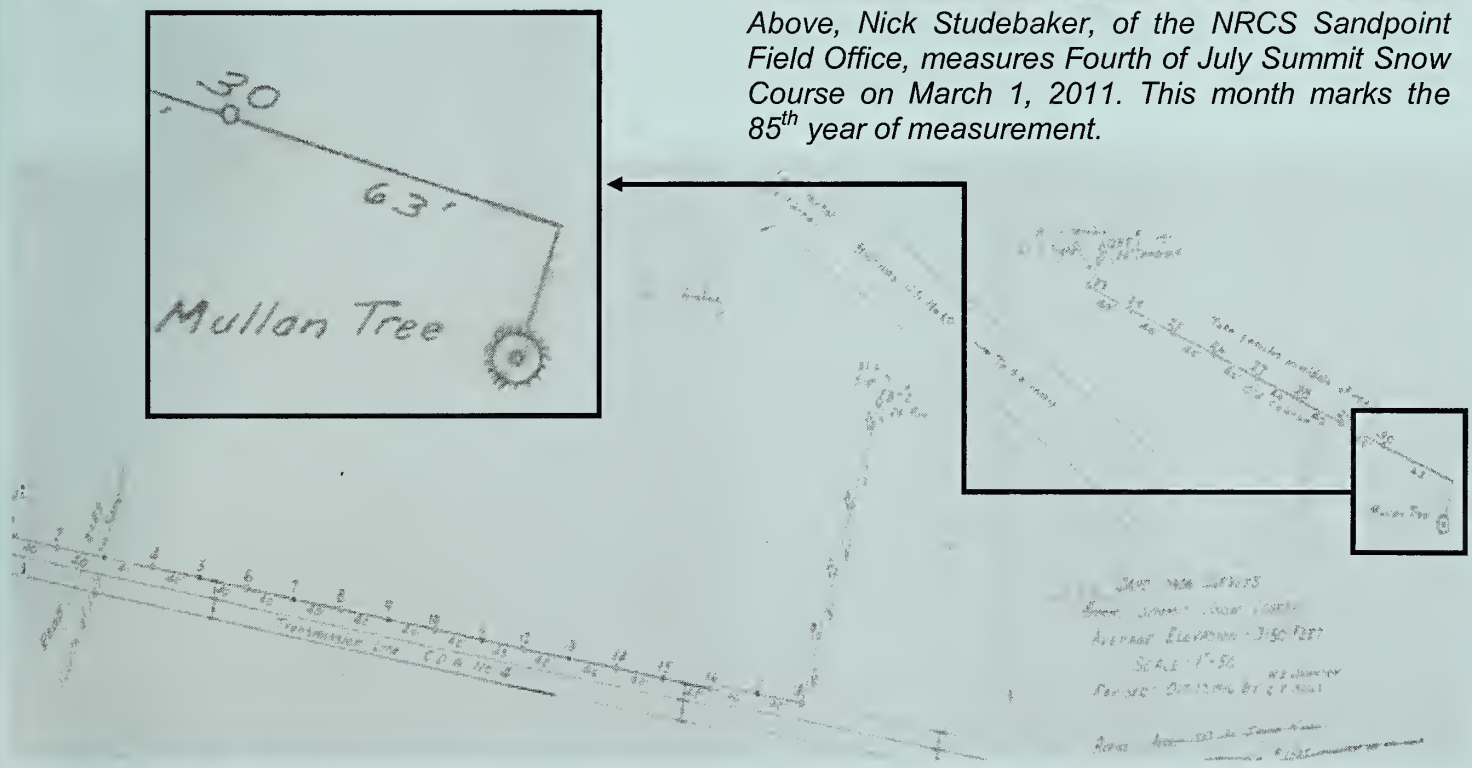
United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report March 1, 2011

Fourth of July Summit Snow Course located just south of Interstate 90 in Idaho's Panhandle, was first measured in 1923 giving it the third longest-term snow record in Idaho. The site map (below) indicates that the course originally extended north of the road and had a total of 30 measurement points. This must have meant a full day of snow sampling for early snow surveyors. Today, the snow course has been shortened to 5 points.

Above, Nick Studebaker, of the NRCS Sandpoint Field Office, measures Fourth of July Summit Snow Course on March 1, 2011. This month marks the 85th year of measurement.



The 1936 site map of Fourth of July Summit Snow Course shows the course's original end point (sample point 30) was located a short distance from the "Mullan Tree" which was inscribed by Captain John Mullan's Army Crew who celebrated there on July 4th, 1861 during the construction of the Mullan Road.

Basin Outlook Reports
and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, or to subscribe to this publication

Contact - - Your local county Natural Resources Conservation Service Office
or
Natural Resources Conservation Service
Snow Surveys
9173 West Barnes Drive, Suite C
Boise, Idaho 83709-1574
(208) 378-5740

Internet Web Address
http://www.id.nrcs.usda.gov/snow/

To join a free email subscription list contact us by email at: IDBOISE-NRCS-SNOW@one.usda.gov

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

IDAHO WATER SUPPLY OUTLOOK REPORT

March 1, 2011

SUMMARY

Another month of variable precipitation did not impact Idaho's water supply outlook too much. February precipitation amounts ranged from 45% of average in the Boise and Big Wood basins to near average in the Bear, Spokane and Clearwater basins. The Bear River basin hosts the highest snowpack in the state at 124% of average, twice last year and highest since 1997. The lowest snowpacks are 79-89% of average across the middle of Idaho from the Weiser basin to the Big Lost basin. Reservoir storage is in good shape, with many reservoirs reporting average or better amounts for the end of February. The lowest reservoir storage levels reside across Idaho's southern border and include the Owyhee, Salmon Falls, Oakley reservoirs and Bear Lake. These storage facilities are 60-85% of average, 30-55% full. Streamflow forecasts range from 155% of average runoff in the Bear River to 75% in the Little Wood and Big Lost basins. The most important forecast for many of Idaho's water users on the Snake River Plain is the Snake River near Heise. This point, located just east of Idaho Falls, is forecast for 110% of average streamflow from April through July. Overall, water supplies should be adequate for most users, but could be tight in the Big Lost, Little Lost and Oakley basins. A few more storms tracking across these basins or good spring precipitation would help put the icing on the cake and ensure an adequate water supply for the state.

SNOWPACK

The above average February 1 snowpacks helped ease water user's anxiety during the extended dry spell from mid-January to mid-February in central Idaho. On the other hand, near average precipitation in the Clearwater and Bear River basins helped snowpacks in those areas increase by normal or better amounts. Currently, the Bear River basin snowpack is 124% of average, highest in the state, and is guaranteed an average or better snowpack by April 1. The lowest snowpacks in the state are 79-89% of average stretching from the Weiser basin across the Payette, Boise, MF Salmon, Big Wood, Little Wood to the Big Lost basin. Elsewhere across northern, southern, and eastern Idaho, snowpacks are 90-110% of average. March is usually the last major snow accumulation month before the snowpack reaches its peak water content in early April. More snow is still needed. Without any more precipitation between now and early April the basins across central Idaho would end the season at only 65-75% of average, similar to last year's April 1 snow water content peaks.

PRECIPITATION

For the second consecutive month, Idaho experienced extreme precipitation variability and temperature swings. January's dry spell continued into mid-February. During the first few weeks of February, only a few tenths of an inch of precipitation was measured in Idaho's central mountains. Monthly precipitation totals for February ranged from a low of 45% of average in the Boise and Big Wood basins to near average in the Spokane, Clearwater, and Bear basins. Otherwise, amounts were in the 60-80% of average range and kept the snowpack percentages from decreasing too much during February. Looking at the overall water year, the northern third of Idaho and basins across southern Idaho, eastern Idaho and western Wyoming have received 110-130% of average precipitation. Idaho's west central mountains have received

96% of average water-year-to-date precipitation and the Big Wood basin has seen the biggest deficit this season at 88% of average.

The weather pattern that was responsible for pushing the storms away from Idaho and into the mid-west and eastern half of the nation shifted in the second half of February. Short-term weather forecasts for March call for cool and wet conditions for the Pacific Northwest and northern tier of the US. The March, April and May long-term forecasts also point towards below average temperatures in the Pacific Northwest and equal chances of above, below or normal precipitation amounts. Based on these forecasts, water users may consider hedging towards another wet and cool spring similar to last March. 2008 marked a shift in the spring weather pattern to a cooler, slower snowmelt season and increased spring precipitation in parts of the state. Also worth noting is the reduction of forest fires in the northwest since this shift occurred, compared to the trend observed in the drought years immediately following start of the new millennium.

RESERVOIRS

Idaho's reservoirs remain in good shape as many were able to capture January's rain-on-snow runoff event. All reservoirs are reporting near average storage levels or better, with the exception of the larger storage facilities across southern Idaho. Bear Lake storage is 545,780 acre-feet, 60% of average and only 38% full but will have enough to meet irrigation demand. Oakley Reservoir has 21,600 acre-feet and water users typically need 50,000 acre-feet to meet irrigation demands. Combining the current Oakley storage and the streamflow forecast of 30,000 acre-feet (81% of average), the irrigation supplies may be marginal. Salmon Falls Reservoir has 49,200 acre-feet and water users need 110,000 acre-feet to meet irrigation demand. With a streamflow forecast of 110,000 acre-feet (112% of average), shareholders should have plenty of water. Owyhee Reservoir users will have an adequate supply with 403,000 acre-feet in storage, 83% of average, and 56% of capacity. Water users typically need 450,000 acre-feet to meet irrigation demands and the difference should be made up in streamflow. Besides Oakley, the other areas of concern are the Big Lost and Little Lost basins where streams are forecast at 75-85% of average. A few more storms or wet spring conditions would provide enough moisture to boost supplies and hopefully squeeze through the irrigation season. For the rest of the state, water supplies should be adequate. Reservoir operators are watching the snowpack, weather and streamflow forecasts to see if and/or when releases are needed to minimize flooding, while ensuring refill after the snowmelt peaks occur.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

STREAMFLOW

Streamflow levels returned to more seasonal flow levels in February despite the spike during January's rain-induced runoff event. Streamflow levels are typically low this time of year and monthly volumes were in the 80-110% of average range across most of the state. A few streams and canals in eastern and northern Idaho still have river ice present. Hopefully, nature will melt the river ice gradually to reduce the chance of floods. For the rest of the state, the January thaw diminished this threat by breaking up the river ice and melting much of the low elevation snowpack. The January rain event did increase soil moisture levels in the western half of the state. Although runoff efficiency improves with wetter soils, streamflow also depends on spring precipitation and air temperatures driving snowmelt. The streamflow forecasts decreased ten

percentage points from last month in parts of central Idaho due to dry February weather. In wetter places such as northern Idaho, the streamflow forecasts stayed the same as last month while the Bear River basin streamflow forecasts improved.

Note: Forecasts published in this report are NRCS forecasts. Jointly coordinated published forecasts by the USDA NRCS and the NOAA NWS are available from the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html. The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water.

RECREATION

For much of central Idaho, February was split down the middle into dry and wet halves. The halves were divided by record breaking mid-month temperatures that had valley residents reaching for their bikes, tennis rackets and garden spades instead of their skis, snowboards and snow machines. While snowfall was pretty consistent all month in north Idaho, most of the rest of the state felt winter's return after Valentine's Day, when cupid sent powder lovers what they had been longing for. The month ended well with the biggest storms arriving just before March 1. North Idaho was the winner in this department with some SNOTEL sites receiving over 4 inches of new snow water content in the last few days of the month. That water totaled up to 3-4 new feet of snowfall at Schweitzer Mountain and Lookout Pass ski areas. For those with the right tools, the feeling of bottomless powder below their feet must have been hard to equal. Others without the right tools found that the fun factor can rapidly decrease; this included a group of snow surveyors who got their snowmobiles bogged down in all that powder. The new snow will undoubtedly help increase the water supply for the coming whitewater season. Currently, snowpacks are similar to 2004 in the Salmon basin, 2006 in the Clearwater and 2003 in the Payette. Time will tell how the snow runs off, but until then enjoy your water in the frozen, crystalline form.

2011 WESTERN SNOW CONFERENCE

The 79th Western Snow Conference (WSC) annual meeting will be held in Lake Tahoe at Stateline, Nevada/California April 18-21. The theme for this year is "Satellites and smart instruments - the trend from established instrumentation toward distributed SWE estimation in watersheds". The training course on Monday is 'Forecasting with the PRMS Model'. Additional information about the conference, registration and short course is available on the WSC web page at: http://www.westernsnowconference.org/

IDAHO WATER SUPPLY OUTLOOK REPORT

From now on all hard copy subscribers will receive the full water supply report, instead of some subscribers getting only individual basins. This change increases our efficiency. Users can download and print individual basins from the following web page and then selecting Idaho and report format HTML. http://www.wcc.nrcs.usda.gov/cgibin/bor.pl

We also have an email address subscription list to notify readers when the report is available online. An email is sent to customers each month providing immediate notification when the report is available. You can either cancel your hardcopy subscription or add the email notification to it. If you wish to be added to this email list, contact: Adam Birken at adam.birken@id.usda.gov or (208) 685-6989. Email list subscribers are also notified of other products that are only available online; these include the June Water Supply Outlook Report and the Fall Summary.

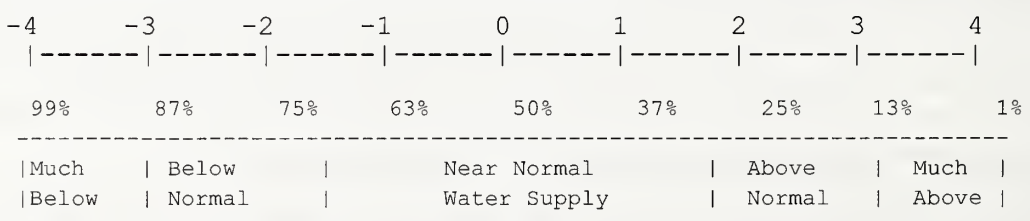
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) March 1, 2011

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1971 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortage May Occur When SWSI is Less Than*
Spokane	1.0	2009	NA
Clearwater	1.6	2009	NA
Salmon	-0.4	2010	NA
Weiser	-0.8	2000	NA
Payette	-0.4	2009/2010	NA
Boise	0.6	2000	-1.8
Big Wood	0.2	1993	-0.2
Little Wood	0.4	2009	-1.9
Big Lost	-0.4	2010	-0.1
Little Lost	-0.4	2010	0.4
Teton	0.6	2009	NA
Henrys Fork	0.5	2008	-3.3
Snake (Heise)	1.2	2009	-1.7
Oakley	-1.0	2009	-1.0
Salmon Falls	0.9	1996	-1.6
Bruneau	1.6	2005	NA
Owyhee	0.6	1993	-3.5
Bear River	-0.5	2001	-2.8

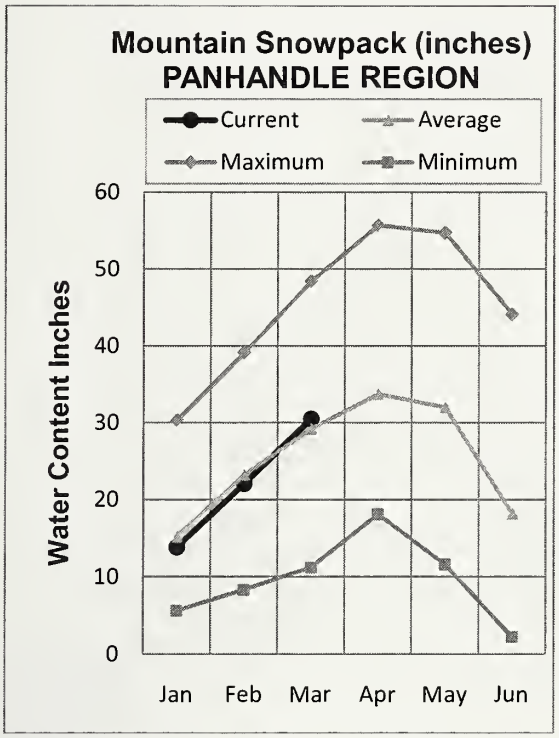
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

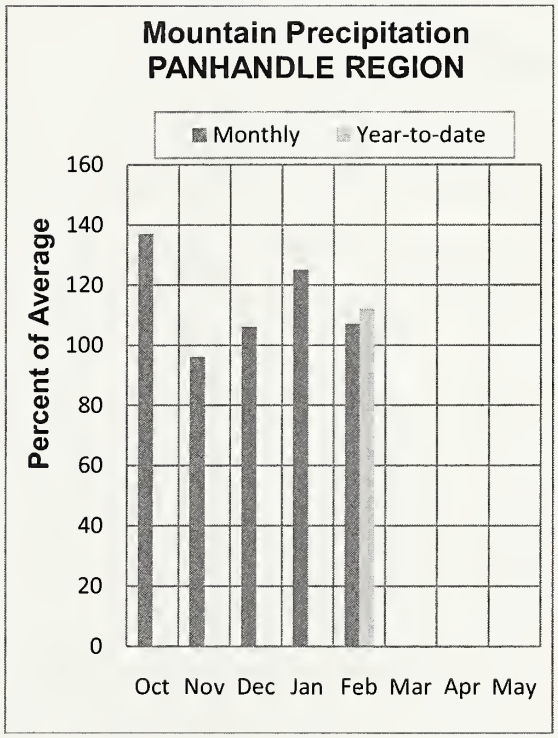


NA = Not Applicable, Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION

MARCH 1, 2011





WATER SUPPLY OUTLOOK

The last day of February made its mark bringing high winds, nearly a foot of snow in St. Maries and deep powder snow in the mountains. The Panhandle Region mountain snowpack has piled up to 105% of average on March 1 and is still counting. The best snowpack is in the Pend Oreille drainage at 113% of average and the lowest at 85% of average in the Rathdrum drainage. Last year, the Panhandle snowpack was 52% of average on March 1. Thanks to good fall precipitation and the past month's weather, the water year-to-date precipitation is 107% of average at the SNOTEL sites. The mountain snowpack and good precipitation results in seasonal streamflow forecasts ranging from 102% of average in the Kootenai and Moyie rivers, to 108% in the Spokane and St. Joe rivers and up to 112% of average for the Clark Fork for the April-July period. Over the last few years, the concern has been low elevation snow delivering too much water. The problem is that the valley snow can melt rapidly compared to the more predictable higher elevation snowmelt. If the valley snow melts in a slow fashion this month, then the flood threat will be reduced. On the other hand, if the low elevation snow is still lying around at the end of this month and a rapid warm-up occurs, then the threat would increase.

PANHANDLE REGION
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	APR-JUL	6120	6860	7200	102	7540	8280	7040
	APR-SEP	7250	7990	8320	103	8650	9390	8120
Moyie River at Eastport	APR-JUL	330	380	415	103	450	500	405
	APR-SEP	345	395	430	102	465	515	420
Smith Ck nr Porthill	APR-JUL	93	112	125	102	138	157	123
	APR-SEP	96	118	132	102	146	168	129
Boundary Ck nr Porthill	APR-JUL	104	116	125	102	134	146	123
	APR-SEP	110	123	132	102	141	154	129
Clark Fork at Whitehorse Rpds (1,2)	APR-JUL	10300	11900	12700	112	13500	15100	11300
	APR-SEP	11300	13200	14000	112	14800	16700	12500
Pend Oreille Lake Inflow (2)	APR-JUL	12000	13300	14100	111	14900	16200	12700
	APR-SEP	13200	14500	15400	111	16300	17600	13900
Priest R nr Priest River (1,2)	APR-JUL	605	730	790	97	850	975	815
	APR-SEP	645	780	845	97	910	1050	870
NF Coeur d'Alene R at Enaville	APR-JUL	565	705	800	108	895	1030	740
	APR-SEP	610	750	845	108	940	1080	780
St. Joe R at Calder	APR-JUL	1000	1140	1230	108	1320	1460	1140
	APR-SEP	1070	1210	1300	108	1390	1530	1200
Spokane R nr Post Falls (2)	APR-JUL	2050	2470	2750	108	3030	3450	2550
	APR-SEP	2160	2580	2870	108	3160	3580	2650
Spokane R at Long Lake (2)	APR-JUL	2310	2760	3070	108	3380	3830	2850
	APR-SEP	2550	3020	3330	109	3640	4110	3070

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2543.0	2608.0	2047.6
FLATHEAD LAKE	1791.0	849.8	789.8	802.7
NOXON RAPIDS	335.0	303.6	317.2	306.0
PEND OREILLE	1561.3	835.9	551.7	778.8
COEUR D'ALENE	238.5	87.1	58.9	144.9
PRIEST LAKE	119.3	48.9	49.4	56.8

PANHANDLE REGION
Watershed Snowpack Analysis - March 1, 2011

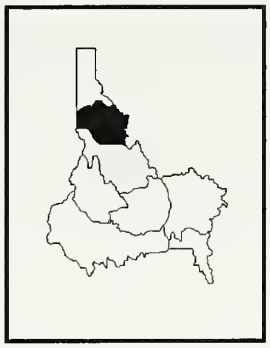
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	21	157	107
Moyie River	7	139	99
Priest River	4	155	103
Pend Oreille River	83	174	112
Rathdrum Creek	4	159	85
Hayden Lake	0	0	0
Coeur d'Alene River	7	193	99
St. Joe River	5	199	99
Spokane River	15	191	96
Palouse River	1	478	119

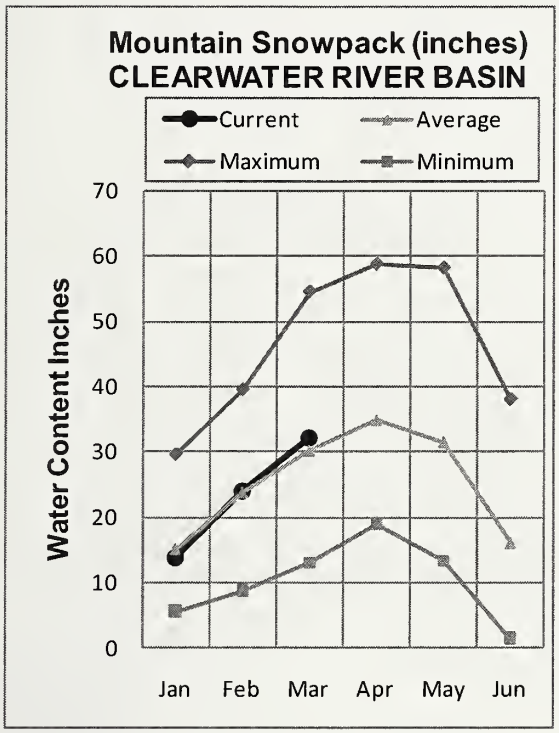
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

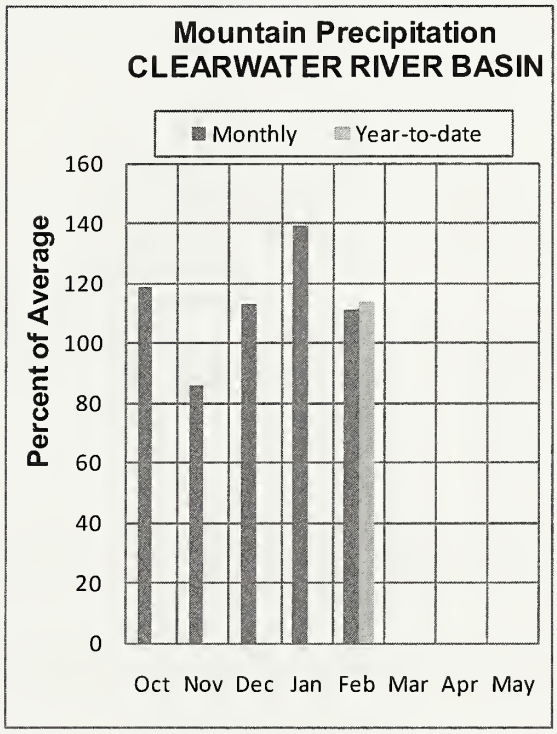
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

CLEARWATER RIVER BASIN

MARCH 1, 2011







WATER SUPPLY OUTLOOK

After a slow start to winter, the mountains in the Clearwater basin have finally received the deep snow that was expected this winter. During February, some of the higher elevation SNOTEL sites added nearly 40 inches of snow to their base depth and over 12 inches of new snow water content (about 120 inches of snowfall). In other words, February's precipitation was 111% of average and the snowpack now ranges from 101% of average in the Selway to about 107% in the Lochsa and North Fork Clearwater basins. The Clearwater snowpack has reached 89% of the seasonal snow water content peak and that means if no new snow falls this month, the snowpack would be 89% of average when the snowmelt season begins. However, forecasts call for more stormy weather for at least the first part of March! With the good snowpack and precipitation, the seasonal streamflow forecasts for the April through July period are a consistent 107% of average for the Selway, Lochsa, Dworshak Reservoir Inflow and the Clearwater River. Water supplies should be adequate this year based on the forecasts and the fact that Dworshak Reservoir is storing 90% of average water behind the dam. The last day in February brought a lot of low elevation snow in places such as Moscow, where outlying areas received up to 19 inches. Just like the Panhandle Region, too much water too quickly could be an issue if the low elevation snow does not melt slowly over the next month.

CLEARWATER RIVER BASIN
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	1870	2080	2220	108	2360	2570	2060
	APR-SEP	1960	2180	2330	107	2480	2700	2170
Lochsa R nr Lowell	APR-JUL	1340	1510	1630	107	1750	1920	1530
	APR-SEP	1410	1590	1710	106	1830	2010	1610
Dworshak Res Inflow (1,2)	APR-JUL	2050	2590	2830	107	3070	3610	2640
	APR-SEP	2160	2730	2990	107	3250	3820	2800
Clearwater R at Orofino (1)	APR-JUL	3830	4610	4970	107	5330	6110	4650
	APR-SEP	4025	4854	5230	107	5606	6435	4900
Clearwater R at Spalding (1,2)	APR-JUL	6150	7410	7980	107	8550	9810	7430
	APR-SEP	6480	7810	8410	107	9010	10300	7850

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2043.4	2210.6	2281.7

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - March 1, 2011

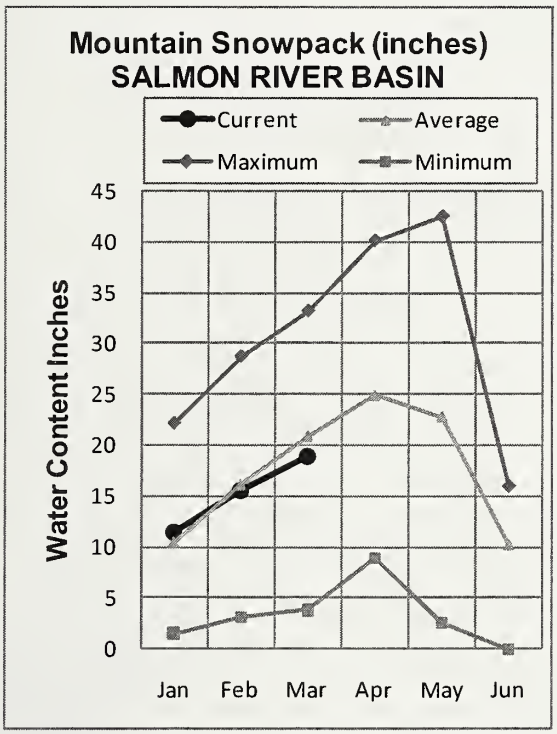
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	198	107
Lochsa River	3	207	107
Selway River	5	188	101
Clearwater Basin Total	17	200	106

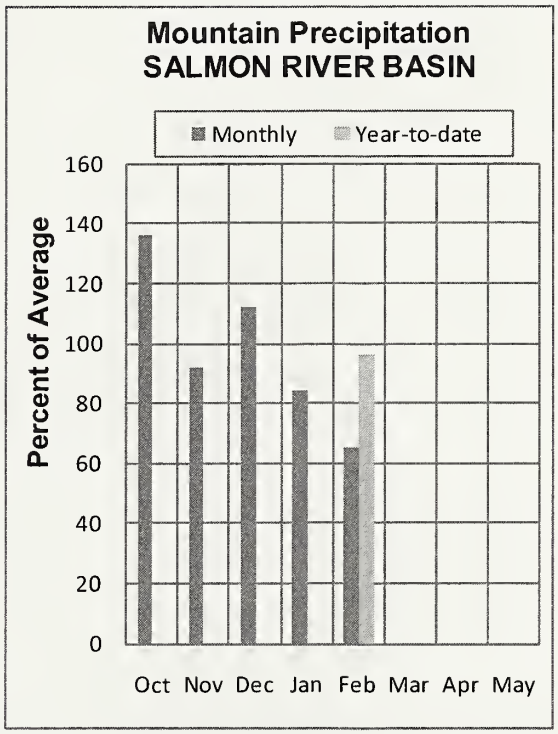
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SALMON RIVER BASIN

MARCH 1, 2011





WATER SUPPLY OUTLOOK

While basins to the north received above average precipitation during February, the storm track dodged the Salmon River basin earlier in the month. The last week in February delivered light, powdery snow for the anxious snow sports enthusiasts, but the precipitation was only 65% of average for the month. As with most of central Idaho, there are only a few locations that were able to hold on to a near-average snowpack during the dry spell. Overall, the Salmon basin snowpack is 95% of average. The Lemhi basin snow sites are the only sites recording an above average snowpack of all the Salmon River tributaries. The Salmon River above the town of Salmon, the Middle Fork Salmon, and Little Salmon River snowpacks are about 87% of average. The snow water content in the snowpack is just slightly better in the South Fork Salmon drainage at 91% of average. The April-July streamflow forecasts also show variability due to the irregularity in this winter's precipitation. The lowest forecast is for the Salmon River above Salmon at 82% of average and the only forecast that is calling for near average streamflow is Johnson Creek. The snowpacks and seasonal flows that are just under average will provide plenty of water for floating the rivers this spring and summer. With another month of winter and promising wet weather forecasts for March, the streamflow forecasts may still improve. If this spring continues the cold and wet trend, like the last few years, recreationalists and other water users may choose to look at the higher forecasts provided by the 30% chance of exceedance forecasts.

SALMON RIVER BASIN
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	APR-JUL	430	620	705	83	790	980	855
	APR-SEP	500	720	820	82	920	1140	1000
Lemhi R nr Lemhi	APR-JUL	39	57	71	83	87	113	86
	APR-SEP	50	71	87	83	105	134	105
MF Salmon R at MF Lodge	APR-JUL	460	605	705	90	805	950	785
	APR-SEP	515	675	785	90	895	1060	875
SF Salmon R nr Krassel RS	APR-JUL	184	230	260	89	290	335	291
	APR-SEP	210	255	285	91	315	360	312
Johnson Ck at Yellow Pine	APR-JUL	156	185	205	101	225	255	204
	APR-SEP	165	195	215	99	235	265	217
Salmon R at White Bird (1)	APR-JUL	3460	4640	5180	89	5720	6900	5850
	APR-SEP	3810	5130	5730	88	6330	7650	6480

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN
Watershed Snowpack Analysis - March 1, 2011

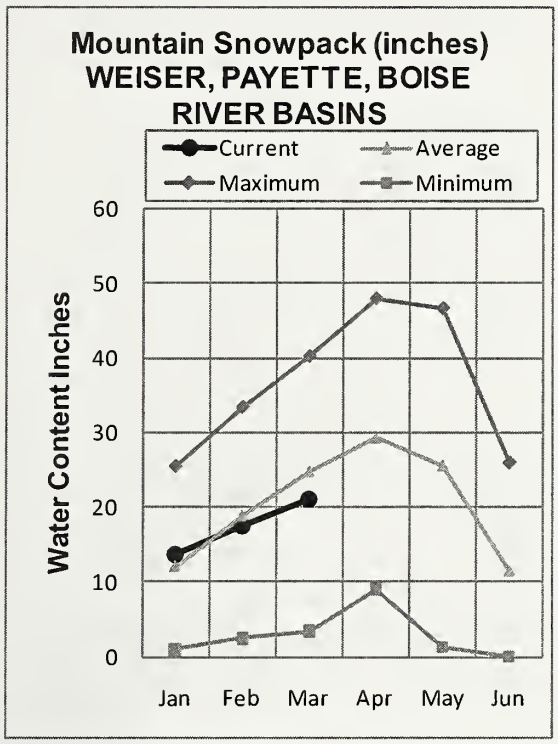
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	9	142	88
Lemhi River	11	140	103
Middle Fork Salmon River	3	160	85
South Fork Salmon River	3	164	91
Little Salmon River	4	137	87
Salmon Basin Total	30	152	95

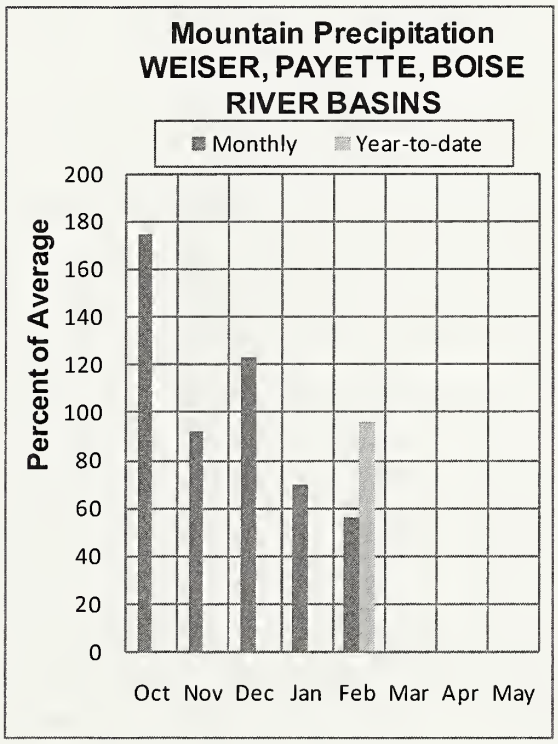
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS

MARCH 1, 2011





WATER SUPPLY OUTLOOK

A month-long dry spell broke in mid-February helping to maintain water supplies. However, the overall trend in Idaho's west central mountains was downward since last month. The mid-month storms pushed out a warm air mass that set records including February 15 when Boise airport hit 64 degrees and Mores Creek Summit SNOTEL reached 50 degrees. The storms benefitted the Weiser and Payette basins the most; these basins had 79% and 62% of normal February precipitation respectively. The Boise basin had only 46% of its average February precipitation. These west central mountains received the least amount precipitation in Idaho for February. Fortunately, precipitation since October 1 is still near average across all three basins. Snowpacks are 88% of average in the Payette and Weiser basins and 82% in the Boise. The Boise basin's snowpack is one of the lowest in the state. Summer streamflow forecasts dropped another five percentage points this month and now range from 80-90% of average across the region. Reservoirs in the Boise and Payette systems continue to store greater than average amounts. The Surface Water Supply Index (SWSI), which is based on the combination of current reservoir storage and streamflow forecasts, suggests that water supplies should be adequate for water users.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	MAR-JUL	250	413	500	90	596	836	555
	APR-JUL	160	280	345	89	417	600	390
	APR-SEP	178	302	370	88	444	632	420
SF Payette R at Lowman	APR-JUL	279	326	360	82	396	451	440
	APR-SEP	315	367	405	82	445	507	495
Deadwood Res Inflow (1,2)	APR-JUL	78	105	117	87	129	156	134
	APR-SEP	84	113	126	89	139	168	142
Lake Fk Payette R nr McCall	APR-JUL	59	70	77	91	85	97	85
	APR-SEP	62	72	80	90	88	101	89
NF Payette R at Cascade (1,2)	APR-JUL	292	408	460	89	512	628	520
	APR-SEP	302	421	475	88	529	648	540
NF Payette R nr Banks (2)	APR-JUL	430	520	585	87	650	740	675
	APR-SEP	445	545	610	87	675	775	700
Payette R nr Horseshoe Bend (1,2)	APR-JUL	1000	1280	1410	86	1540	1820	1640
	APR-SEP	1030	1370	1520	86	1670	2010	1760
Boise R nr Twin Springs (1)	APR-JUL	386	506	560	88	614	734	635
	APR-SEP	422	551	610	88	669	798	690
SF Boise R at Anderson Ranch (1,2)	APR-JUL	272	388	440	82	492	608	540
	APR-SEP	294	415	470	81	525	646	580
Mores Ck nr Arrowrock Dam	APR-JUL	66	91	110	84	131	166	131
	APR-SEP	67	92	112	82	134	169	137
Boise R nr Boise (1,2)	APR-JUN	805	995	1080	86	1170	1360	1260
	APR-JUL	785	1070	1200	85	1330	1610	1410
	APR-SEP	840	1150	1290	84	1430	1740	1530

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	6.2	2.7	6.1
CASCADE	693.2	465.3	442.6	438.3
DEADWOOD	161.9	102.1	94.0	88.5
ANDERSON RANCH	450.2	331.4	303.0	268.0
ARROWROCK	272.2	222.7	221.8	210.4
LUCKY PEAK	293.2	137.1	96.3	120.4
LAKE LOWELL (DEER FLAT)	165.2	120.1	113.3	109.1

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2011

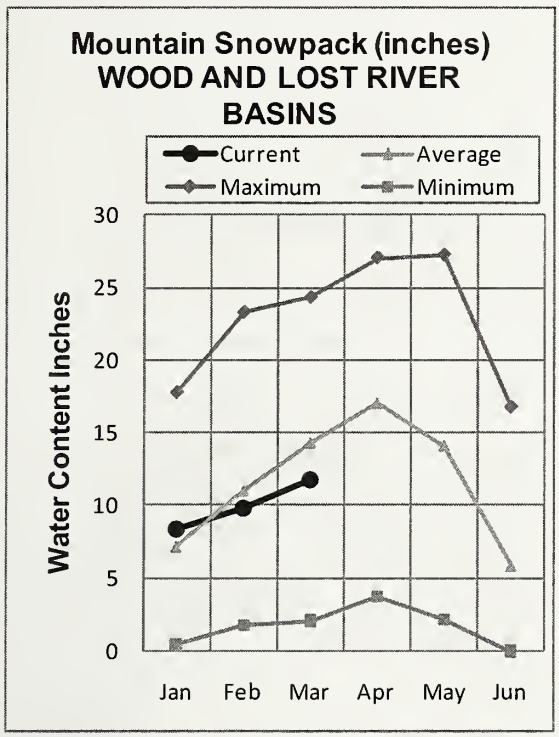
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	96	96
Weiser River	4	110	88
North Fork Payette	8	143	93
South Fork Payette	5	139	84
Payette Basin Total	14	138	89
Middle & North Fork Boise	5	126	82
South Fork Boise River	9	110	81
Mores Creek	5	102	86
Boise Basin Total	16	108	81
Canyon Creek	2	64	81

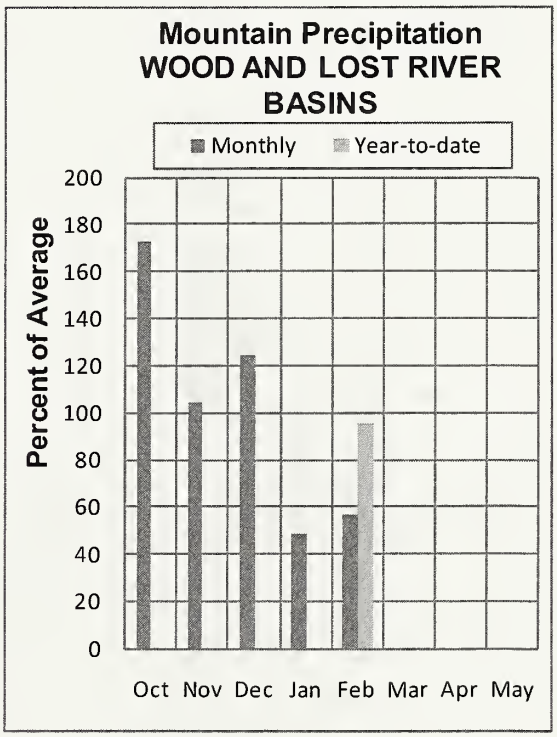
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WOOD and LOST RIVER BASINS

MARCH 1, 2011





WATER SUPPLY OUTLOOK

A second consecutive month of below average precipitation in the Wood and Lost River basins led to a further decrease in summer water supply forecasts. February was bone dry until mid-month when storms made their way into the area. Thanks to these storms monthly precipitation recovered somewhat ranging from 48% of normal in the Big Wood basin, to about 65% in the Little Wood and Big Lost basins and 76% of average in the Little Lost. Water year-to-date precipitation remains average in the Little Wood and Little Lost basins, but is below average in the Big Lost and Big Wood basins. The Big Wood is the driest basin in the state at 88% of average. Snowpacks are 79% of average in the Big Wood, 86% in the Big Lost, 89% in the Little Wood and 99% in the Little Lost. As mentioned last month, our below ground sensors are measuring good soil moisture; this will help with efficient snowmelt runoff when spring arrives. In other words, expect more of the melt-water to reach creeks rather than first having to fill up the soil profile. Streamflow forecasts range from about 75% of normal for the Big Lost below Mackay and Little Wood near Carey, to 79% of average for the Big Wood below Magic and Camas Creek, and up to 90% of average for the Little Lost near Howe. Storage is above average in Magic, Little Wood and Mackay reservoirs. The Surface Water Supply Index (SWSI), which is based on the combination of current reservoir conditions and the middle of the road streamflow forecasts (50% exceedance forecast), suggests that water supplies may be tight in the Big Lost and Little Lost basins, while supplies should be adequate in the Big Wood and Little Wood basins.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	APR-JUL	85	171	210	82	249	335	255
	APR-SEP	94	191	235	81	279	376	290
Big Wood R ab Magic Res	APR-JUL	62	110	142	75	174	220	190
	APR-SEP	69	120	155	76	190	240	205
Camas Ck nr Blaine	APR-JUL	37	60	79	79	101	138	100
	APR-SEP	37	61	80	79	102	139	101
Big Wood R bl Magic Dam (2)	APR-JUL	107	180	230	79	280	355	290
	APR-SEP	112	188	240	79	290	370	305
Little Wood R ab High Five Ck	MAR-JUL	33	51	66	78	83	111	85
	MAR-SEP	36	56	72	78	90	121	92
Little Wood R nr Carey (2)	MAR-JUL	39	59	72	75	85	105	96
	MAR-SEP	42	63	77	74	91	112	104
Big Lost R at Howell Ranch	APR-JUL	80	113	138	80	166	212	173
	APR-SEP	92	129	158	80	190	243	197
Big Lost R bl Mackay Res	APR-JUL	44	80	104	74	128	164	141
	APR-SEP	56	99	129	75	159	200	172
Little Lost R nr Howe	APR-JUL	17.3	23	28	90	33	41	31
	APR-SEP	21	28	34	87	40	51	39

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	90.5	82.5	89.7
LITTLE WOOD	30.0	22.1	24.2	17.7
MACKAY	44.4	37.5	38.8	30.8

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - March 1, 2011

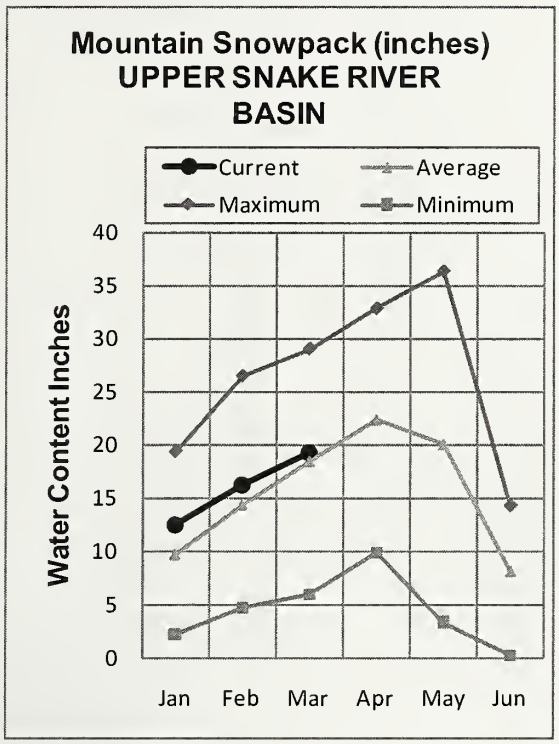
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Big Wood ab Hailey	8	131	79
Camas Creek	5	93	79
Big Wood Basin Total	13	117	79
Fish Creek	3	137	101
Little Wood River	8	135	88
Big Lost River	6	153	86
Little Lost River	4	172	99
Birch-Medicine Lodge Cree	2	146	104
Camas-Beaver Creeks	4	148	89

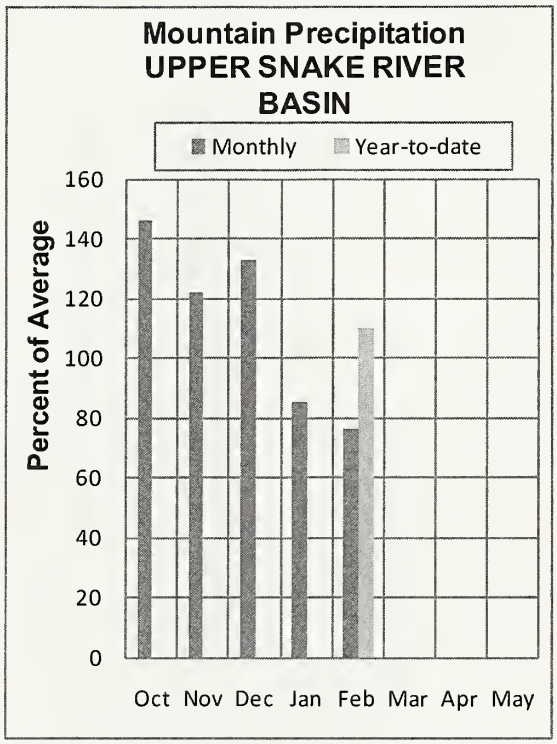
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

UPPER SNAKE BASIN

MARCH 1, 2011





WATER SUPPLY OUTLOOK

Enough precipitation arrived in February to keep the Upper Snake snowpack above average while moving the basin one step closer to a good water supply season. February produced 76% of its normal monthly precipitation, putting water year-to-date amounts at 110% of average. Snowpacks range from near average in the Henrys Fork to 113% of average in the Gros Ventre and Greys basins. Overall the snowpack for the Snake above American Falls is 106% of average. Combined reservoir storage for the eight reservoirs in the Upper Snake is 70% of capacity and 98% of average. The winter is taking its toll on SNOTEL equipment in the Upper Snake. Two Ocean Plateau SNOTEL, located deep in Yellowstone's backcountry, stopped reporting on February 23. Since this site requires helicopter access in the winter, we are hoping it comes back to life if it receives a few days of sunshine. Snake River Station SNOTEL, also located in Yellowstone, has a leaky snow pillow. Editing this site's data is easier thanks to the manual measurements being made by Bureau of Reclamation snow surveyors. These technical difficulties emphasize the importance of having multiple SNOTEL sites in the same basin; redundancy means each streamflow forecast doesn't rely too heavily on any one SNOTEL site. The Upper Snake above American Falls has 28 SNOTEL sites plus a number of manually measured snow courses. Streamflow forecasts range from 100-130% of average. Water supplies continue to look fine for this summer. In fact, in the last 50 years there has never been a year that failed to reach its normal April 1 snow water peak when the March 1 snowpack was similar to this year's amount.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fk nr Ashton (2)	APR-JUL	431	503	555	97	610	695	570
	APR-SEP	592	678	740	97	805	905	765
Falls R nr Ashton (2)	APR-JUL	298	340	370	97	401	449	380
	APR-SEP	356	405	440	98	477	533	450
Teton R nr Driggs	APR-JUL	133	159	178	108	198	230	165
	APR-SEP	162	195	220	105	246	287	210
Teton R nr St. Anthony	APR-JUL	307	367	410	101	456	528	405
	APR-SEP	369	439	490	102	544	628	480
Henrys Fork nr Rexburg (2)	APR-JUL	1240	1400	1510	97	1620	1780	1560
	APR-SEP	1640	1820	1940	97	2060	2240	2010
Snake R at Flagg Ranch	APR-JUL	429	483	520	105	557	611	495
	APR-SEP	471	530	570	105	610	669	545
Snake R nr Moran (1,2)	APR-JUL	688	813	870	107	927	1052	815
	APR-SEP	751	895	960	106	1025	1169	905
Pacific Ck at Moran	APR-JUL	145	172	190	111	208	235	171
	APR-SEP	148	176	195	110	214	242	178
Buffalo Fork ab Lava nr Moran	APR-JUL	258	292	315	105	338	372	301
	APR-SEP	294	333	360	105	387	426	344
Gros Ventre R at Kelly	APR-JUL	182	215	240	120	265	300	200
	APR-JUL	182	215	240	120	265	300	200
Snake R ab Res nr Alpine (1,2)	APR-JUL	1970	2314	2470	104	2626	2970	2370
	APR-SEP	2229	2635	2820	103	3005	3411	2730
Greys R nr Alpine	APR-JUL	342	379	405	119	431	468	340
	APR-SEP	394	439	470	119	501	546	395
Salt R nr Etna	APR-JUL	329	398	445	131	492	561	340
	APR-SEP	390	473	530	126	587	670	420
Snake R nr Irwin (1,2)	APR-JUL	3000	3440	3640	109	3840	4280	3330
	APR-SEP	3470	3960	4180	108	4400	4890	3870
Snake R nr Heise (2)	APR-JUL	3350	3680	3900	110	4120	4450	3560
	APR-SEP	3880	4250	4500	108	4750	5120	4160
Willow Ck nr Ririe (2)	MAR-JUL	60	81	95	108	109	130	88
Blackfoot R ab Res nr Henry	APR-JUN	42	59	73	100	88	113	73
Portneuf R at Topaz	MAR-JUL	64	76	85	96	94	109	89
	MAR-SEP	78	92	102	94	113	129	109
Snake R at Neeley (1,2)	APR-JUL	2390	3210	3580	111	3950	4770	3240
	APR-SEP	2460	3350	3750	107	4150	5040	3510

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	88.7	86.0	84.4
ISLAND PARK	135.2	97.0	113.4	107.1
GRASSY LAKE	15.2	13.2	12.8	12.0
JACKSON LAKE	847.0	656.6	628.7	494.0
PALISADES	1400.0	875.7	1174.0	1033.1
RIRIE	80.5	44.7	42.2	38.5
BLACKFOOT	348.7	214.0	203.1	224.7
AMERICAN FALLS	1672.6	1203.7	1509.0	1271.1

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2011

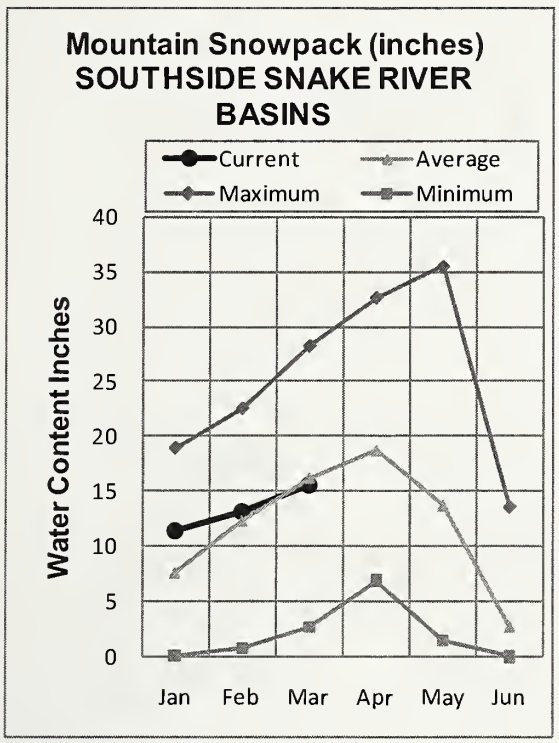
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	9	185	102
Teton River	8	174	98
Henrys Fork above Rexburg	17	180	100
Snake above Jackson Lake	9	201	101
Pacific Creek	3	187	105
Gros Ventre River	4	202	113
Hoback River	5	226	106
Greys River	4	177	113
Salt River	5	168	112
Snake above Palisades	28	199	107
Willow Creek	7	154	99
Blackfoot River	5	153	98
Portneuf River	6	156	106
Snake abv American Falls	46	184	106

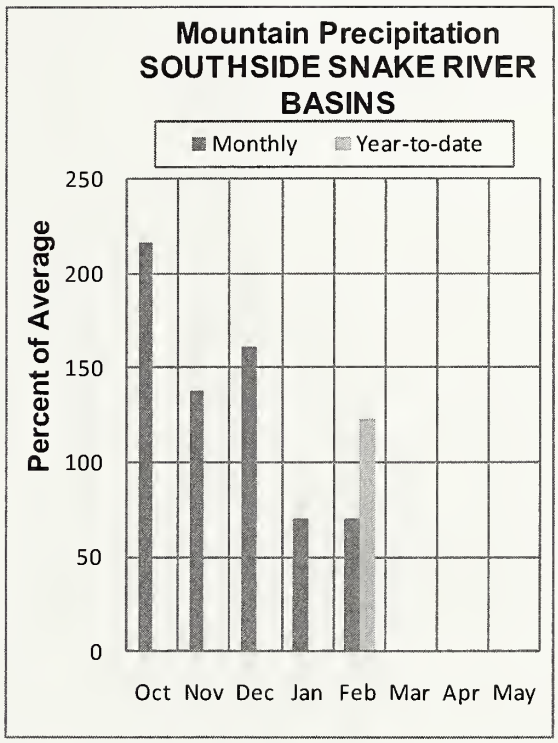
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS

MARCH 1, 2011





WATER SUPPLY OUTLOOK

February marked the second month of below normal precipitation for the Southside Snake basins. Despite that, all basins are holding on to near average or better snowpacks. Monthly precipitation amounts ranged from 51% of normal in the Raft basin to 88% in the Bruneau. This past month was drier than January in the Raft, Goose and Salmon Falls basins, while conditions were slightly wetter than January in the Bruneau and Owyhee basins. Snowpacks are 87-115% of average in the Owyhee, Bruneau, Salmon Falls and Raft basins. The Raft River's snowpack is the best in this region at 115% of average. Reservoir storage is up a few percentage points from last month and currently is 69% of average in Oakley and about 82% in Salmon Falls, Wildhorse and Owyhee reservoirs. Streamflow forecasts are most promising for the Owyhee River ranging from 103% at Gold Creek to 115% near Rome, and below Owyhee Dam. Forecasts are also above average for Salmon Falls Creek, the Bruneau River and Reynolds Creek. The lowest forecast is for Oakley inflow at 82% of average. With most of winter behind us, the Surface Water Supply Index (SWSI) begins to carry more weight as we move closer to spring. These indexes, which combine streamflow forecasts with current reservoir storage, are pointing towards an adequate water supply in all basins except the Oakley basin where supply may be marginal.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Goose Ck ab Trapper Ck nr Oakley	MAR-JUL	14.4	21	25	97	29	36	26
	MAR-SEP	16.5	23	28	93	33	40	30
Trapper Ck nr Oakley	MAR-JUL	5.3	6.3	7.0	97	7.7	8.7	7.2
	MAR-SEP	6.4	7.5	8.2	94	8.9	10.0	8.7
Oakley Res Inflow	MAR-JUL	14.6	22	28	82	35	46	34
	MAR-SEP	15.8	24	30	81	37	49	37
Salmon Falls Ck nr San Jacinto	MAR-JUN	68	86	100	112	115	139	89
	MAR-JUL	68	87	102	110	118	144	93
	MAR-SEP	74	95	110	112	127	153	98
Bruneau R nr Hot Springs	MAR-JUL	175	229	270	115	314	386	235
	MAR-SEP	181	237	280	112	326	400	250
Reynolds Ck at Tollgate	MAR-JUL	5.6	7.2	8.5	88	9.9	12.1	9.7
Owyhee R nr Gold Ck (2)	MAR-JUL	12.1	25	33	103	41	54	32
	MAR-SEP	11.3	24	32	103	40	53	31
Owyhee R nr Rome	MAR-JUL	445	575	665	115	755	885	580
	MAR-SEP	467	600	690	115	780	913	600
Owyhee R bl Owyhee Dam (2)	MAR-JUL	455	600	705	115	820	1010	615
	MAR-SEP	492	634	740	115	855	1038	645
	APR-SEP	288	405	495	115	594	757	430

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	21.6	25.9	31.4
SALMON FALLS	182.6	49.2	46.4	59.8
WILDHORSE RESERVOIR	71.5	33.3	28.3	40.1
OWYHEE	715.0	403.8	213.0	489.1
BROWNLEE	1420.0	1007.4	1176.3	1090.5

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2011

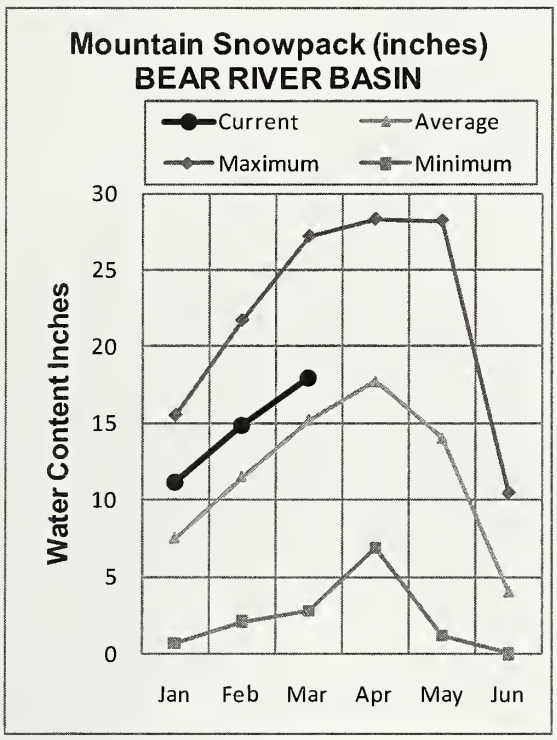
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	129	115
Goose-Trapper Creeks	7	119	98
Salmon Falls Creek	8	140	100
Bruneau River	8	130	101
Reynolds Creek	6	99	87
Owyhee Basin Total	19	96	100

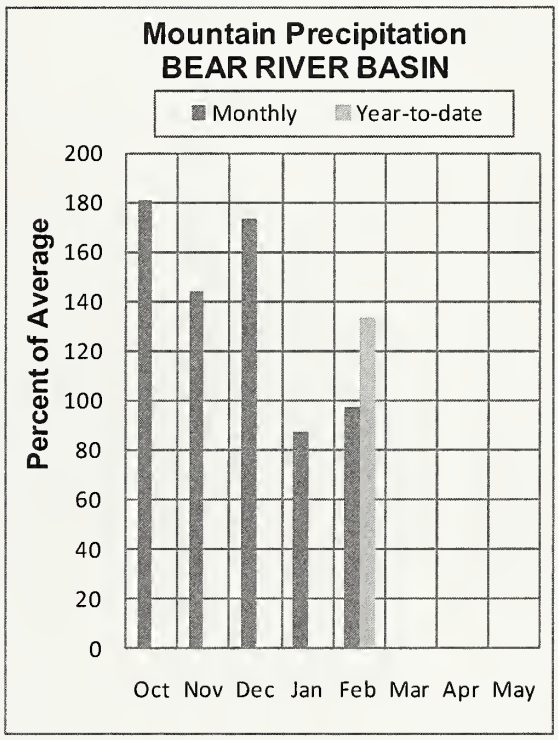
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

BEAR RIVER BASIN

MARCH 1, 2011





WATER SUPPLY OUTLOOK

Moisture laden storms have favored the central and southern Rockies this winter creating great winter recreation opportunities and optimistic water users. In Idaho, while the central mountains have below average snowpacks, the Bear River's snowpack percentages shine the brightest in the state. By including all 25 snow measuring sites in the Bear River headwaters in Wyoming, Utah and Idaho, the snowpack is 124% of average, and even better in the Utah headwaters. There hasn't been this much snow in the Bear River basin since 1997. If the rest of the snow accumulation season is dry until snowmelt starts, then the snow water content would be 100% of average by the usual April snowpack peak. Therefore, the spring and summer streamflow forecasts are well above average. The forecasts range from 126% of average at the Smiths Fork to nearly 155% on the branches of the Bear River and up to 167% at the Blacksmith Fork. Even the minimum forecasts (90% exceedance forecasts) for these rivers call for average or better amounts for the same period, which is a rarity. Currently, Bear Lake is 60% of average. With another month of winter to go and an exceptional snowpack, Bear Lake should be able to capture the runoff and make strides towards improving the lake storage that has been in a deficit for a decade. June 1999 was the last time the lake was full. The abundant snowfall is welcome in southeast Idaho where less than average snowfall and streamflow have been the rule for the past decade.

BEAR RIVER BASIN
Streamflow Forecasts - March 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	128	147	160	142	173	192	113
	APR-SEP	143	165	180	144	195	215	125
Bear R abv Resv nr Woodruff	APR-JUL	138	166	185	136	205	230	136
	APR-SEP	157	185	205	144	225	255	142
Big Ck nr Randolph	APR-JUL	5.6	6.8	7.6	155	8.4	9.6	4.9
Smiths Fork nr Border	APR-JUL	103	119	130	126	141	157	103
	APR-SEP	124	142	155	128	168	186	121
Bear R bl Stewart Dam	APR-JUL	240	310	355	152	400	470	234
	APR-SEP	265	345	400	153	455	535	262
L Bear at Paradise	APR-JUL	46	59	68	148	77	90	46
Logan R nr Logan	APR-JUL	136	155	168	133	181	200	126
Blacksmith Fk nr Hyrum	APR-JUL	56	70	80	167	90	104	48

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	545.8	553.6	910.7
MONTPELIER CREEK	4.0	2.4	2.6	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	197	123
Bear River ab WY-ID line	11	226	130
Montpelier Creek	2	184	116
Mink Creek	4	178	117
Cub River	3	193	133
Bear River ab ID-UT line	25	201	124
Malad River	1	153	114

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: Streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Jan 2011).**

Panhandle River Basins

Kootenai R at Leonia, ID
+ Lake Koocanusa (Storage Change)
Moyie R at Eastport, ID – No Corrections
Boundary Ck nr Porthill, ID – No Corrections
Smith Creek nr Porthill, ID – No Corrections
Clark Fork R at Whitehorse Rapids, ID
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids Res (Storage Change)
Pend Oreille Lake Inflow, ID
+ Pend Oreille R at Newport, WA
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids (Storage Change
+ Pend Oreille Lake (Storage Change)
+ Priest Lake (Storage Change)
Priest R nr Priest R, ID
+ Priest Lake (Storage Change)
NF Coeur d'Alene R at Enaville, ID - No Corrections
St. Joe R at Calder, ID - No Corrections
Spokane R nr Post Falls, ID
+ Coeur d'Alene Lake (Storage Change)
Spokane R at Long Lake, WA
+ Coeur d'Alene Lake (Storage Change)
+ Long Lake, WA (Storage Change)

Clearwater River Basin

Selway R nr Lowell - No Corrections
Lochsa R nr Lowell - No Corrections
Dworshak Res Inflow, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Res (Storage Change)
Clearwater R at Orofino, ID - No Corrections
Clearwater R at Spalding, ID
+ Dworshak Res (Storage Change)

Salmon River Basin

Salmon R at Salmon, ID - No Corrections
Lemhi R nr Lemhi, ID – No Corrections
MF Salmon R at MF Lodge, ID – No Corrections
SF Salmon R nr Krassel Ranger Station, ID – No Corrections
Johnson Creek at Yellow pine, ID – No Corrections
Salmon R at White Bird, ID - No Corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser, ID - No Corrections
SF Payette R at Lowman, ID - No Corrections
Deadwood Res Inflow, ID
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res (Storage Change)
Lake Fork Payette R nr Mccall, ID – No Corrections
NF Payette R at Cascade, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)
NF Payette R nr Banks, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)
Payette R nr Horseshoe Bend, ID
+ Cascade Res (Storage Change)
+ Deadwood Res (Storage Change)
+ Payette Lake (Storage Change)
Boise R nr Twin Springs, ID - No Corrections
SF Boise R at Anderson Ranch Dam, ID
+ Anderson Ranch Res (Storage Change)
Mores Ck nr Arrowrock Dam – No Corrections
Boise R nr Boise, ID
+ Anderson Ranch Res (Storage Change)
+ Arrowrock Res (Storage Change)
+ Lucky Peak Res (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections
Big Wood R ab Magic Res, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck
Camas Ck nr Blaine – No Corrections
Big Wood R bl Magic Dam nr Richfield, ID
+ Magic Res (Storage Change)
Little Wood R ab High Five Ck, ID – No Corrections
Little Wood R nr Carey, ID
+ Little Wood Res (Storage Change)
Big Lost R at Howell Ranch, ID - No Corrections
Big Lost R bl Mackay Res nr Mackay, ID
+ Mackay Res (Storage Change)
Little Lost R bl Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henrys Fork nr Ashton, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)
Henrys Fork nr Rexburg, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)
+ Grassy Lake (Storage Change)
+ Diversions from Henrys Fk btw Ashton to St. Anthony, ID
+ Diversions from Henrys Fk btw St. Anthony to Rexburg, ID
+ Diversions from Falls R ab nr Ashton, ID
+ Diversions from Falls R nr Ashton to Chester, ID
Falls R nr Ashton, ID
+ Grassy Lake (Storage Change)
+ Diversions from Falls R ab nr Ashton, ID
Teton R nr Driggs, ID - No Corrections
Teton R nr St. Anthony, ID
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony, ID
Snake R nr Moran, WY
+ Jackson Lake (Storage Change)

Pacific Ck at Moran, WY – No Corrections
Buffalo Fork ab Lava nr Moran – No Corrections
Gros Ventre R at Kelly – No Corrections
Snake R ab Palisades, WY
+ Jackson Lake (Storage Change)
Greys R ab Palisades, WY – No Corrections
Salt R ab Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Res (Storage Change)
Blackfoot Reservoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Res (Storage Change)
Portneuf R at Topaz, ID - No Corrections
Snake R at Neeley, ID
+ Snake R at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Goose Ck ab Trapper Ck-no adjustments
Trapper Ck nr Oakley-no adjustments
Oakley Res Inflow, ID (does not include Birch Creek inflow)
+ Goose Ck ab Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Reynolds Ck at Tollgate - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Res (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee R bl Owyhee Dam, OR
+ Owyhee R bl Owyhee Dam, OR (observed)
+ Owyhee Res (Storage Change)
+ Diversions to North and South Canals
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Res (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R ab Res nr Woodruff, UT – No Corrections
Big Ck nr Randolph – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R bl Stewart Dam nr Montpelier, ID
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise – No Corrections
Logan R nr Logan – No Corrections
Blacksmith Fk nr Hyrum – No Corrections

Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Jan 2011)**

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	NRCS Capacity	NRCS Capacity Includes
Panhandle Region						
Hungry Horse	39.73	---	3451.00	---	3451.0	Active
Flathead Lake	Unknown	---	1791.00	---	1791.0	Active
Noxon Rapids	Unknown	---	335.00	---	335.0	Active
Pend Oreille	406.20	112.40	1042.70	---	1561.3	Dead+Inactive+Active
Coeur d'Alene	Unknown	13.50	225.00	---	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead+Inactive+Active
Clearwater Basin						
Dworshak	Unknown	1452.00	2016.00	---	3468.0	Inactive+Active
Weiser/Boise/Payette Basins						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	Unknown	46.70	646.50	---	693.2	Inactive+Active
Deadwood	Unknown	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive+Active
Arrowrock	Unknown	---	272.20	---	272.2	Active
Lucky Peak	Unknown	28.80	264.40	13.80	293.2	Inactive+Active
Lake Lowell	7.90	5.80	159.40	---	165.2	Inactive+Active
Wood/Lost Basins						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	Unknown	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
Henrys Lake	Unknown	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	Unknown	---	15.18	---	15.2	Active
Jackson Lake	Unknown	---	847.00	---	847.0	Active
Palisades	44.10	155.50	1200.00	---	1400.0	Dead+Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	Unknown	---	348.73	---	348.7	Active
American Falls	Unknown	---	1672.60	---	1672.6	Active
Southside Snake Basins						
Oakley	0.00	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active+Inactive
Wildhorse	Unknown	---	71.50	---	71.5	Active
Owyhee	406.83	---	715.00	---	715.0	Active
Brownlee	0.45	444.70	975.30	---	1420.0	Inactive+Active
Bear River Basin						
Bear Lake	5000.00	119.00	1302.00	---	1421.0	Active+Inactive: includes 119 that can be released
Montpelier Creek	0.21	---	3.84	---	4.0	Dead+Active

Interpreting Water Supply Forecasts

Introduction
Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

90 Percent Chance of Exceedance Forecast. There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

70 Percent Chance of Exceedance Forecast. There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

50 Percent Chance of Exceedance Forecast. There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

30 Percent Chance of Exceedance Forecast. There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

10 Percent Chance of Exceedance Forecast. There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

To Decrease the Chance of Having Less Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

To Decrease the Chance of Having More Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

Using the forecasts - an Example
Using the 50 Percent Exceedance Forecast. Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

Using the 90 and 70 Percent Exceedance Forecasts. If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

Using the 30 or 10 Percent Exceedance Forecasts. If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

Weiser, Payette, Boise River Basins
Streamflow Forecasts – January 2006

Forecast Point	Forecast Period	Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000 AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	690

*90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table

USDA Natural Resources Conservation Service
9173 West Barnes Drive, Suite C
Boise ID 83709-1574

OFFICIAL BUSINESS

Issued by
Dave White, Chief
Natural Resources Conservation Service
Washington, DC

Released by
Jeff Burwell, State Conservationist
Rob Sampson, State Conservation Engineer
Natural Resources Conservation Service
Boise, Idaho

Prepared by
Snow Survey Staff
Ron Abramovich, Water Supply Specialist
Philip Morrisey, Data Collection Officer
Jeff Anderson, Hydrologist
Julie Koeberle, Hydrologist
Adam Birken, Hydrologic Technician
Jeff Graham, Electronics Technician
Chad Gipson, Electronics Technician

Assistance provided by
Jolyne Lea, Forecast Hydrologist
Rashawn Tama, Forecast Hydrologist
NRCS, National Water and Climate Center, Portland, Oregon

Numerous other groups and agencies provide funding
and/or cooperative support for the collection, operation
and maintenance of the Snow Survey Program.
Their cooperation is greatly appreciated.